

ABSTRACT OF THE DISCLOSURE

Described are cleaning methods and apparatus that minimize the volume of hazardous materials used and created when cleaning components, and further to minimize the possibility of cross-contamination between components from different deposition chambers. Components to be cleaned are stored within or supported by a dedicated cassette before they are placed in a receptacle of cleaning liquid. The cassette displaces a significant percentage of the receptacle's volume; consequently, only a relatively small volume of cleaning liquid is needed to fully submerge the component. In typical embodiments, the combined cassette and component displace a volume of liquid that is greater than the volume of liquid used to clean the component. One embodiment of the invention reduces the requisite volume of cleaning solution using a number of liquid-displacing elements (e.g., balls) contained within a cleaning receptacle. Components to be cleaned are inserted into a bath comprised of cleaning liquid and the displacement elements. The displacement elements raise the level of liquid within the cleaning receptacle, and thereby reduce the amount of cleaning liquid needed to cover the component.